Risk Factors Associated with PTSD and Major Depression among Cambodian Refugees in Utah

Robert G. Blair

The study reported in this article is a secondary analysis of data collected from a random sample of 124 Cambodian adults, ages 18 to 76 years. Participants were interviewed about their mental health status and factors associated with a diagnosis of posttraumatic stress disorder (PTSD) or major depression. From analysis of the data, the following risk factors were identified with PTSD and depression: experiencing a greater number of war traumas increased the risk of both PTSD and major depression; experiencing a greater number of resettlement stressors during the past year increased the risk of both PTSD and major depression; and having financial stress increased the risk of major depression.

Key words
Cambodians
depression
PTSD
refugees
risk factors

Refugees frequently experience many problems adapting to the new systems and cultures of their host countries. This adaptation is made more difficult when the refugee has experienced horrific trauma in his or her native country. The Cambodian refugees surveyed in this study survived extreme conditions of death and destruction brought about by the Khmer Rouge regime from 1975 until 1979 (Hein, 1995). After the reign of Khmer Rouge regime, nearly all participants in this study were forced to relocate for varying periods in squalid refugee camps abroad and finally were resettled in Utah.

Cambodians' resettlement in the United States has been foreign and strange in terms of language, cultural customs, weather, food, and religion. Many have endured racial discrimination and a struggle for basic survival. According to Hein (1995), most Cambodian refugees in the United States have experienced "severe antagonism" and "perceive extensive prejudice and discrimination" (p. 153).

Earlier studies indicated that despite living in the United States for some years, PTSD and major depression were still rampant among the Cambodian population. Carlson and Rosser-Hogan (1993), incorporating random sampling, reported that 86 percent of the Cambodians in their sample met the modified criteria of the DSM-III-R for PTSD, and 80 percent met the criteria for depression. Clarke, Sack, Ben, Lanham, and Him (1993); Kroll et al. (1989); and Sack et al. (1994) also have found high rates of PTSD and major depression among Cambodian refugees in the United States.

The amount and extent of traumas experienced by these refugees during the Khmer Rouge regime and subsequently in refugee camps appear to be the most likely reason for the high rates of PTSD and major depression. Mollica, Wyshak, and Lavelle (1987), in a study of Indochinese refugees, noted that the Cambodian population was the most traumatized of the refugees and had experienced an average of 16 traumatic events, including deprivation, physical injury or torture, incarceration

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or re-education camps, and witnessing killing or torture. Although not specific to Cambodian refugees, Lipton (1994) and Zeiss and Dickman (1989) supported the relationship between traumas and PTSD by noting that the more severe and long lasting the trauma, the more severe the symptoms of PTSD.

Although earlier research indicates that greater numbers of traumas result in greater vulnerability to PTSD, only a few studies have examined the specific types of traumas that create the greatest vulnerability. Mollica et al. (1987) and Kroll et al. (1989) noted that the loss of a spouse among Cambodian women increased vulnerability to PTSD and other psychopathology.

In addition to higher levels of trauma, Cheung (1994) noted that postmigration stressors increased the risk of PTSD among Cambodian refugees. Conversely, Kinzie, Fredrickson, Ben, Fleck, and Keri (1984) reported that current stressors appeared to trigger rather than cause PTSD symptoms. According to Kinzie et al., PTSD may be a chronic condition capable of being reactivated by current stressors reminiscent of the original trauma.

Few studies have examined the specific risk factors associated with Cambodian refugees and their vulnerability to major depression. Sack, Seeley, Clarke, and Gregory (1997) and Shalev et al. (1998) noted that stressors following trauma or recent stresssors increased the risk of major depression among Cambodian refugees.

Although earlier studies found high rates of psychopathology among this population, limited numbers of these studies have been conducted in which both random sampling was incorporated and a psychiatric diagnosis was assigned. Therefore a strength of the data used here is that it results from examining refugee mental health while incorporating random sampling into its design. The study uses a major psychiatric diagnostic instrument that has been translated and culturally adapted to fit the Cambodian language and culture. It examines not only the number of traumas experienced and how they affect PTSD and major depression but also specific traumas and their influence on these disorders.

METHODS

The original study conducted by Shirley McSharry, a doctoral candidate at the University of Utah, used random sampling and a cross-sectional survey design to study 124 adult Cambodian refugees. Participants were refugees declaring their ethnic origin as Cambodian in the Salt Lake County Health Screening records. Participants had to be age 18 and older and residing in Salt Lake City and adjoining suburbs, where the largest number of Cambodians settled in Utah. From these records a random sample of 150 Cambodians was drawn. Of the 150, 124 were interviewed (McSharry & Kinney, 1991).

To survey these participants, six interviewers were selected from the Cambodian community—all were fluent in both English and Cambodian and were familiar with Western medical and psychiatric concepts. The interviewers were pretrained in the administration and scoring of the interview, and all interviews were conducted in the participants' homes (McSharry & Kinney, 1991).

The current study is a secondary analysis of the data collected from the original study. It has some weaknesses. Primarily, the data being studied were obtained in 1991; thus, the instruments used to measure PTSD and major depression were based on the DSM-III-R rather than the current DSM-IV. Time and financial constraints did not allow formal validation of the DSM-III-R scales for this ethnic population (McSharry & Kinney, 1991). Nonetheless, painstaking care was taken to select the best available instruments (McSharry & Kinney). Participants' reports of their traumas and resettlement stressors also were retrospective and therefore contingent on their memories. An additional weakness is that although results of this study should be generalizable to Cambodians in Utah, Cambodian community leaders reported that the poorest and least well-functioning people had migrated out of Utah already (McSharry & Kinney). Therefore, results of this study may not be generalizable to Cambodians living in other U.S. states.

INSTRUMENTS

The interview schedule included four instruments designed to facilitate the assessment of mental health: (1) the National Institute of Mental Health (NIMH) Diagnostic Interview Schedule (DIS), (2) the Diagnostic Interview for Children and Adolescents (DICA-R) (Reich & Welner, 1988), (3) the War Trauma Scale (WTS), and (4) the Resettlement Stressor Scale (RSS) (Sack et al., 1993). In addition, demographic information was included.

The NIMH DIS was used to examine rates and symptoms of major depression among this population. It gathers symptoms for psychiatric diagnosis according to DSM-III-R criteria (American Psychiatric Association, 1987; Robins, 1988). The

NIMH DIS is a structured interview that enables lay interviewers to get a psychiatric diagnoses comparable to those that a psychiatrist would obtain. Rubio-Stipec, Shrout, Camino, Bravo, and Bird (1989) noted that the NIMH DIS yielded similar results in individuals whose ethnicity and language were different. And Watson, Juba, Manifold, Kucala, and Anderson (1991) reported that the NIMH DIS was the best available instrument for use by lay interviewers in obtaining reasonably reliable estimates of psychiatric diagnoses in an ethnic minority population. In the present study, participants had to meet clearly full DSM-III-R criteria to qualify for a diagnosis.

PTSD was measured by the DICA-R (Reich & Welner, 1988). This scale was substituted for the NIMH DIS because it proved to be more meaningful and less confusing to participants on pretesting (McSharry & Kinney, 1991). The DICA-R is a fully structured interview modeled after the NIMH DIS and based on the DSM-III-R criteria (Welner, Reich, Herjanic, Jung, & Amado, 1987). Several authors have noted the high reliability of this instrument (Herjanic & Reich, 1982; Sack et al., 1994; Thompson, 1989).

The 42-item WTS was developed to gain information about the massive stressors experienced by the Cambodian people during the Khmer Rouge regime and in refugee camps. It was based on the clinical observations of David Kinzie, a prominent psychiatrist working with this population, and other transcultural psychiatrists (McSharry & Kinney, 1991). According to Clarke, Sack, and Goff (1992), the WTS demonstrated reasonable test-retest and interrespondent reliability.

Thirty-five items were included in the RSS. Information about this scale was first published by Sack et al. (1993) and based on the clinical experience of the authors. The scale was designed to gain information about the unique stresses of being a refugee and new immigrant to the United States. To date, this scale has not been evaluated for validity and reliability.

Research Questions

To facilitate analysis of the data, I proposed three questions: (1) What are the most frequently reported war traumas? (2) What are the most frequently reported resettlement stressors? (3) Which of the items on the WTS, the RSS, and the demographic checklist are significantly associated with PTSD or major depression? To assist in answering question 3, three hypotheses were formulated:

- Hypothesis 1: Participants with a diagnosis of PTSD or major depression will report significantly more war traumas.
- Hypothesis 2: Participants with a diagnosis of PTSD or major depression will report significantly higher levels of distress for resettlement stressors during the first year in the United States and during the past year in the United States.
- Hypothesis 3: Participants with a diagnosis of PTSD or major depression will report significantly more financial stress as evidenced by fewer jobs outside the home, lower income, and higher rates of welfare.

A variety of statistical tests were used in the analysis of the hypotheses. Current PTSD or major depressive diagnosis and scores on the WTS and RSS (categorical versus continuous) were examined using Student's *t* test. When variables were combined to create new variables, Student's *t* test was used to evaluate differences among groups. To evaluate dichotomous or categorical data the chi-square test was used. An alpha probability level of .05 was selected a priori as the minimum level to be considered statistically significant for differences among groups.

Findings

Demographics

Of the 124 Cambodians selected for the study, 75 were women and 49 were men—a ratio representative of the actual ratio of Cambodian women to men in Utah. Service providers in Utah suggested that women make up a higher proportion of the Cambodian refugee population in the state (McSharry & Kinney, 1991). According to Judd (1990), more men were killed during the Vietnam War and subsequent Khmer Rouge regime, leaving more women as refugees. The average age of participants was 37 years and ranged from 18 to 76 years. Participants reported limited formal education—an average of only 5.8 years—and limited income, only a modal yearly income of $10,000 to $15,000 per household per year. Ninety-five percent of participants reported having lived in a refugee camp before being resettled in the United States, the average time in the camps being 3.5 years. At the time of the study (1991), participants reported being resettled in the United States for an average of 8.1 years.

Examination of psychopathology revealed that PTSD and major depression were the most common diagnoses given. Fifty-six (45 percent) of the

participants qualified for a diagnosis of PTSD. Moreover 100 (81 percent) of participants reported suffering from five or more PTSD symptoms. And 63 (51 percent) of participants met the criteria for major depression. (A more detailed description of this sample is contained in Blair, in press).

War Traumas

Nearly all participants in this study experienced serious and chronic traumas during the Khmer Rouge regime, often referred to as "Pol Pot time," and subsequent refugee camp experience, including a lack of sufficient food, extended separation from family, attempts to escape Cambodia, forced living in a work camp, experiencing atrocities or coercion, abuse, loss of immediate family members, and after the fall of the Khmer Rouge regime, being forced to live in a refugee camp. From these categories, individual participants reported experiencing an average of 20.1 war traumas. (See Table 1.)

As indicated in Table 1, 85 percent of the respondents reported that they had lost at least one relative during the Khmer Rouge regime. Seventy-eight percent lost one or more immediate family members, and 60 percent were separated from family for more than one year.

Living and laboring in a work camp in Cambodia was typical during the Khmer Rouge regime: 62 percent of participants reported living in a work camp for at least six months. While there, 39 percent of participants stated that they were beaten or witnessed a relative being beaten. During this time medical care and food were inadequate: 66 percent of participants reported suffering from an illness that lasted longer than one month, and 85 percent reported not having enough to eat.

After the Khmer Rouge regime, 95 percent of participants reported living in one or more refugee camps, 62 percent of those for at least 6 months, and 45 percent reported witnessing beatings or killings while there.

Resettlement Stressors

The RSS examined the more common stressors encountered by participants since their arrival in the United States. It included questions about finances, looking for work, finding transportation, learning a new language, and so forth. Participants were asked about their most intense stressors during their first year in the United States and about how intense those stressors had been during the past year in the United States. They ranked

Table 1. Summary of War Traumas, by Frequency within Categories (*N* = 124)

War Traumas	*n*	%
Khmer Rouge Regime Experience		
During Pol Pot time did you suffer from not enough to eat so that you looked thin, or had swollen legs, or had puffy stomach?	105	85
Did you lose any relatives during this time (grandparents, aunts, uncles) because of the war?	105	85
Did you lose one or more immediate family members during Pol Pot time?	97	78
Did you try to escape from Cambodia?	92	74
Did you have to go without food for at least a day during your escape?	92	74
Did you ever see dead bodies during Pol Pot time?	91	73
Were you ever forced to do things by the Khmer Rouge cadres or others against your will?	89	72
Did you have an illness that lasted longer than one month (things like diarrhea, cough, sores, and so forth)?	82	66
Were you ever without shelter or somewhere to live?	77	62
Did you live in work camps for a period of at least six months?	77	62
Were you separated from your family for longer than one year?	75	60
Did you ever see others (nonfamily) being beaten during this time?	71	57
Were you or your relatives ever beaten by anyone during the Pol Pot time?	48	39
Were you ever tortured by the Khmer Rouge cadres or others?	26	21
Were you ever sexually abused by anyone during the time of the war?	7	6
Refugee Camp Experience		
Did you have to live in a refugee camp?	118	95
Did you live with any relatives while you were in this camp?	76	61
Were you ever in danger when you lived in this camp?	58	47
Did you see beatings or killings when you were in the refugee camp?	56	45

an average of 14 stressors as "very stressful" for their first year in the United States and an average of 5.2 stressors as very stressful during the past year. The most frequently reported stressors ranked as very stressful during year 1 in the United States were lack of adequate English language skills (77 percent), thoughts about family members who had been left behind (63 percent), transportation problems (62 percent), and thoughts about people that they had known who had been killed during Pol Pot time (60 percent).

During the past year, participants most often rated the following as "very stressful": worries about the future in the United States (27 percent), health worries (26 percent), worries about family left behind in Cambodia (24 percent), and worries about not having enough money (23 percent).

Validation of Hypotheses

Hypothesis 1. Participants with a diagnosis of PTSD or major depression will report significantly more war traumas.

Findings support a significant association between war traumas and these disorders. For instance, those with a PTSD diagnosis experienced an average of 22.4 war traumas compared with 18.1 war traumas for those without this diagnosis [$t(122) = -3.37, p = .001$]. To further examine specific traumas, the variable "loss of immediate family" was created from the WTS to examine possible differences in the number of family members lost during the Khmer Rouge regime and refugee camps by diagnosis of PTSD. Variable items included loss of spouse, loss of sibling, loss of child, and loss of parent. Examination revealed that participants with PTSD more often lost immediate family members. Eighty-nine percent of participants with a diagnosis of PTSD versus 69 percent without PTSD reported losing, presumed killed, one or more immediate family members during the Khmer Rouge regime [$\chi^2(1, N = 124) = 4.1, p = .04$]. Further examination of participants who lost immediate family members indicated that those with PTSD lost an average of 2.0 immediate family members compared with 1.3 for those without PTSD [$t(122) = -4.08, p < .001$]. Analysis of the categories within this variable suggested that the loss of a sibling or a spouse created the greatest vulnerability to PTSD. Specifically, 73 percent of those with PTSD indicated losing one or more siblings, compared with 49 percent of those without this diagnosis [$\chi^2(1, N = 117) = 4.59, p = .03$]. And 23 percent of participants with a diagnosis of PTSD reported losing their spouse, compared with only 6 percent of participants without this diagnosis, a difference that approached significance ($p = .09$).

Although not my hypothesis, analysis of the data also revealed that following Khmer Rouge regime, participants who were able to live with family or extended family while in refugee camps had lower rates of PTSD. Fifty percent of participants with a diagnosis of PTSD reported living with family during refugee camp compared with 71 percent of participants who were not diagnosed with PTSD [$\chi^2(1, N = 120) = 6.75, p = .01$].

Participants with major depression experienced an average of 22.1 war traumas compared with 17.9 for those without this diagnosis [$t(122) = -3.62, p < .001$]. Loss of greater numbers of immediate family members was also more common. An average loss of 2.0 family members for those with major depression compared with 1.2 for those without this diagnosis [$t(122) = -4.08, p < .001$]. (See Table 2.)

Although not my hypotheses, results, similar to those found with PTSD, indicated that living with relatives during refugee camp provided significant protection against major depression. Forty-nine percent of those with major depression reported living with relatives compared with 74 percent of those without this diagnosis [$\chi^2(1, N = 120) = 8.37, p = .004$].

The implications of Table 2 are twofold. First, participants with PTSD or major depression experienced a greater number of war traumas. Second, specific traumas alone, such as loss of immediate family members, seemed to create heightened vulnerability to PTSD or major depression.

Hypothesis 2. Participants with a diagnosis of PTSD or major depression will report significantly higher levels of distress for resettlement stressors during the first year in the United States and during the last year in the United States.

Findings provide partial support for the relationship between environmental stressors and these disorders. Corresponding to their first year in the United States, those with a diagnosis of PTSD rated an average of 15.6 of the 35 items as having been very stressful compared with 12.6 for those without a PTSD diagnosis. These differences approached significance ($p = .07$). Although fewer current or past year stressors were rated as either "stressful" or "very stressful" by all groups, those with a PTSD rated significantly more items as very stressful: 6.4 items for those with PTSD compared

Table 2. War Traumas, by Diagnosis of PTSD and Major Depression ($N = 124$)

Variable	PTSD ($n = 56$)	%	Non-PTSD ($n = 68$)	%	p	Major Depression ($n = 63$)	%	Non–Major Depression ($n = 61$)	%	p
War traumas (Average number per respondent)	22.4		18.1		.001	22.1		18.5		.002
Average number of immediate family members killed	2.0		1.2		.001	2.0		1.2		.001
Loss of spouse	13	23	4	6	.09	13	19	4	7	.10
Loss of parent	39	70	32	47	NS	42	62	29	48	.04
Loss of sibling	41	73	33	49	.03	44	65	30	49	.02
Loss of children	20	36	18	26	NS	25	37	13	21	.04
Average number of incidents of abuse	1.5		1.0		.02	2.4		2.2		NS
Average number of problems while attempting escape	2.7		2.2		.03	2.8		2.1		.001

NOTE: NS = not significant.

with 4.2 items for those without this diagnosis [$t(122) = -2.07$, $p = .04$].

During the first year in the United States, participants with major depression rated an average of 15.3 items as "very stressful" compared with 12.6 items for those without major depression, differences that only approached significance ($p = .10$). Yet differences in the number of stressors rated as very stressful during the past year were significant. Those with major depression rated an average of 6.9 items as very stressful compared with 3.4 items for those without major depression [$t(116) = -3.46$, $p = .001$].

Hypothesis 3. Participants with a diagnosis of PTSD or major depression will have more financial stress as evidenced by fewer jobs outside the home, lower income, and higher rates of welfare.

Findings indicate a nonsignificant association between PTSD and financial stress, whereas a significant association was found between major depression and financial stress. Specifically, fewer of those with major depression reported working outside the home: 59 percent of participants with major depression versus 79 percent of participants without major depression [$\chi^2(1, N = 123) = 5.21$, $p = .02$]. Those with major depression reported an average income ranging between $5,000 and $10,000 versus $10,000 to $15,000 for those without this disorder [$t(122) = 4.14$, $p = .001$]. Welfare rates also were higher for those with major depression: 27 percent of participants with major depression reported receiving some type of welfare compared with 11 percent of those without this diagnosis [$\chi^2(1, N = 123) = 4.98$, $p = .03$].

Discussion and Implications for Practice

This study's examination of the risk factors associated with PTSD and major depression should further the understanding of the factors that affect vulnerability to these disorders. Findings indicate that experiencing higher numbers of traumas was associated with higher levels of both PTSD and major depression. Implications for individuals and organizations providing services to Cambodian refugees also are apparent. By taking the time and effort to obtain individual histories of the number and types of traumas experienced, providers can better assess individual vulnerability to PTSD and major depression. Yet this assessment should not be rushed. According to Kinzie and Boehnlein (1993), developing rapport with Cambodian clients "involves a trusting, predictable relationship that often develops gradually" (p. 93).

Of the traumas experienced, a few appeared to have a stronger influence on the development of PTSD or major depression. This study found that the loss of more immediate family members during the Khmer Rouge regime resulted in a higher risk of developing both PTSD and major depression, implying that the loss of immediate family members may in and of itself create increased vulnerability for PTSD and major depression. Earlier research has indicated that Cambodian widows

were especially vulnerable to psychopathology (Kroll et al., 1989; Mollica et al., 1987). Yet no research was found that reported a relationship between the loss of a sibling, a parent, or a child and how that loss was associated with PTSD or major depression.

Conversely, when the reign of the Khmer Rouge ended in 1979 and participants were placed in refugee camps outside of Cambodia, those who were able to live with immediate family or extended family while in these camps reported significantly lower levels of both PTSD and major depression, indicating that after a period of severe trauma, the buffering effects of family support may help protect against the development of PTSD or major depression. Earlier research also supports the mitigating effect of social support on the development of PTSD. Sarason, Sarason, and Pierce (1990) reported that social support from family limited the incidence and severity of PTSD. And Strober (1994) noted that social support was "one of the most effective factors for moderating stress, easing transitions and restoring previous adaptive mechanisms" among Cambodian refugees (p. 26). Moreover, Catolico (1997) noted that the Cambodian culture encourages dependence on a person's immediate and extended family, rather than on self-reliance, suggesting that treatment programs serving Cambodian refugees consider incorporating interventions designed to enhance the social support from immediate and extended family.

Current stressors were found to be significantly associated with PTSD, and an especially strong association was found between current stressors and major depression, implying that the effects of these disorders have not always been immediate but have been long term and chronic. These implications indicate two possibilities. First, the high number of PTSD symptoms reported by this sample may indicate that many may have been on the border of developing PTSD or major depression. The added stress reported by those with these disorders may have exacerbated their symptoms or actually triggered their disorders. Second, individuals with PTSD or major depression may have been less capable of acculturating into U.S. culture, and therefore experienced more chronic stress.

Because of the relationship between stress and these disorders, providers should be aware of and address the practical problems encountered by Cambodian refugees. For example, providers may serve as brokers by linking their Cambodian clients with agencies and organizations that can provide needed resources. When resources are not readily available, they may act as advocates by encouraging organizations to provide these resources. Providers also may educate their Cambodian clients about ways of effectively reducing and coping with current stressors to increase their repertoire of coping skills. This increase may reduce the risk that current stressors will exacerbate or trigger PTSD or depressive symptoms.

A lack of finances was found to be strongly associated with major depression, yet was not significantly associated with PTSD, suggesting that although PTSD and major depression share many of the same risks, they are distinct disorders. Our current knowledge of these disorders is limited; nonetheless, the current study and earlier research suggest that there are common risks and distinct risks among these disorders. Shalev et al. (1998) reported that exposure to atrocities and the intensity of torture increased the risk of PTSD but not the risk of major depression among Vietnam veterans. Whereas stressors following trauma or recent stressors were associated with major depression among Cambodian refugees (Sack et al., 1997; Shalev et al., 1998). Providers serving Cambodian refugees should be aware that PTSD and major depression share many of the same risks and often occur together, yet they are distinct disorders that should be assessed independently.

Future research is needed to further delineate the unique and common risks associated with PTSD and major depression among the Cambodian population. To date scarce research exists that examines demographic and environmental risks associated with these disorders, and no research was available that examined internal characteristics such as self-efficacy or self-esteem and how they were correlated with PTSD and major depression among this population. As our understanding of the risks associated with these disorders increases, providers should be able to target and serve vulnerable members of this population more effectively. **HSW**

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About the Author

Robert G. Blair, PhD, LCSW, *is assistant professor, Department of Sociology, Social Work and Criminology, Morehead State University, 347 Rader Hall, Morehead, KY 40351-1689; e-mail: r.blair@morehead-st.edu.*

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